

What is Claimed is:

1.           A personal identification apparatus comprising:  
          a light source which irradiates a finger;  
          an imaging unit which captures a transmitted light from the finger;  
          an image processing unit which extracts a blood vessel pattern from a image captured with the imaging unit, and compares the blood vessel pattern with a registered blood vessel pattern; and  
          a fixing device which doesn't contact a surface from which the transmitted light passed and contacts a part of the finger;  
          wherein the light source comprises light-emitting elements arranged according to the shape of the finger as the capture.
2.           The personal identification apparatus according to claim 1;  
          wherein the light-emitting devices are arranged in the long direction of the finger.
3.           The personal identification apparatus according to claim 1;  
          wherein the light-emitting devices are arranged are near-infrared light emitting diodes.
4.           The personal identification apparatus according to claim 1;  
          wherein the light-emitting devices emit near-infrared laser beam.
5.           The personal identification apparatus according to claim 1;  
          wherein the light-emitting devices are arranged planimetrically.
6.           The personal identification apparatus according to claim 1;  
          wherein the light-emitting devices are arranged on the straight line.
7.           The personal identification apparatus according to claim 1; further comprising:  
          a memory which stores the registered blood vessel patterns;

wherein image processing unit authenticates the validity of the user based on comparing the extracted blood vessel patterns with the registered blood vessel patterns stored in the memory.

8. The personal identification apparatus according to claim 3;  
wherein each contiguous part of the near-infrared light emitting diodes are coherent each other.
9. The personal identification apparatus according to claim 3;  
wherein each contiguous part of the near-infrared light emitting diodes has a flat surface configuration.
10. The personal identification apparatus according to claim 1;  
wherein a light source irradiates a dorsum of the finger.
11. The personal identification apparatus according to claim 1;  
wherein the fixing device is a pin.
12. The personal identification apparatus according to claim 1; further comprising  
wherein the personal information input means for selecting the registered blood vessel pattern.
13. The personal identification apparatus according to claim 12;  
wherein the personal information input means is a voice input means or a IC card or a keyboard.
14. The personal identification apparatus according to claim 1;  
wherein the image processing unit compares the extracted blood vessel pattern with the registered blood vessel pattern stored on a fixed medium connected to the authentication server or medium containing semiconductor memory or a portable medium.
15. A personal identification apparatus comprising:

a light source which irradiates a capturing part of a finger at a distance;

an imaging unit which detects a transmitted light through the capturing part and captures the capturing part;

an image processing unit which extracts blood vessel patterns from a image captured with the imaging unit, and compares the blood vessel patterns with a pre-registered blood vessel patterns;

a fixing device which doesn't contact a surface from which the transmitted light passed and contacts a part of the finger;

wherein the light source comprises light-emitting devices arranged according to the shape of the finger as the capture.